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(54) Wheel Hub Nut

(57) The nut comprises a flanged hexagonal body (1) on which is retained a rotatable washer (4), the contacting surfaces of the nut and washer having respectively a convex and concave shape. These surfaces are part-spherical, with a radius from 40 to 70 mm.

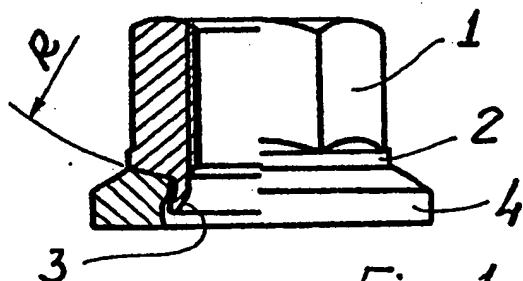
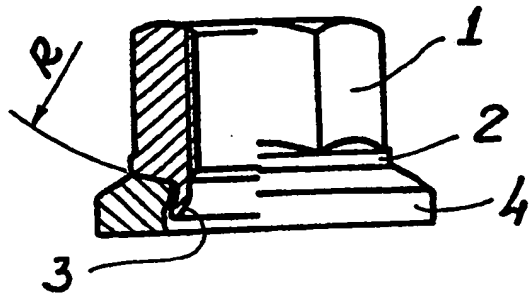
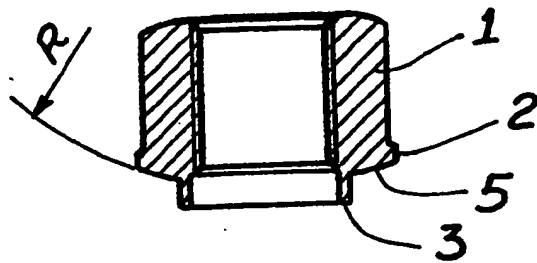
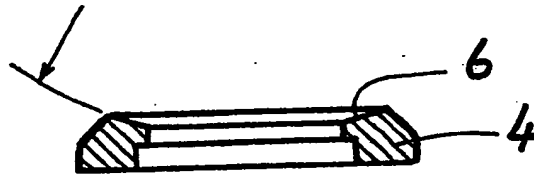
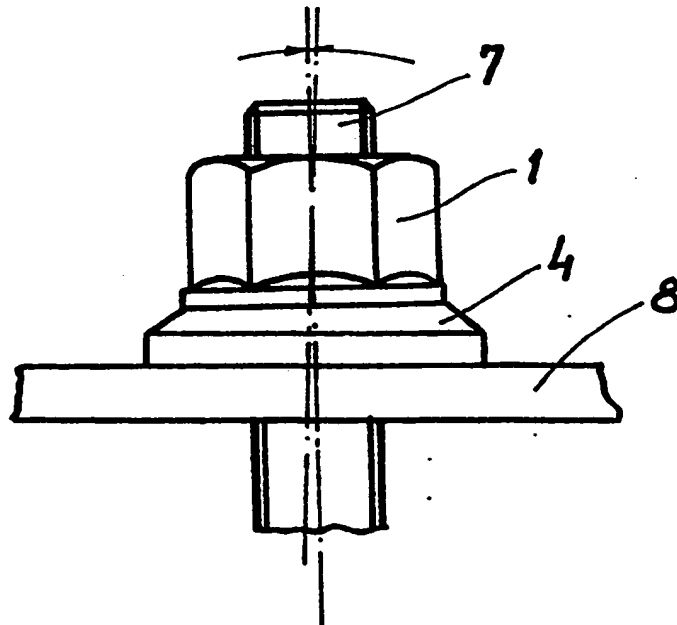


Fig. 1

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Fig. 1Fig. 2Fig. 3Fig. 4

SPECIFICATION

Wheel Hub Nut

The present invention relates to a flange nut, with a rotatable captive washer, particularly
5 designed for coupling the wheels to the hubs in industrial vehicles.

As it is known as wheels are coupled by means of specifically designed bolts, the latter may have their axes disaligned with respect to the bearing
10 surface thereon the nuts will press.

It is also known that the resting surface for a motor vehicle disk wheel, the disk whereof is made of metal sheet, is frequently affected by planarity defects with respect to the resting surface of the
15 nut.

Accordingly as nuts are assembled having a plane or conical resting or bearing surface, the nut and screw threads may engage erroneously.

On the other hand, the nuts used for coupling
20 industrial wheel vehicles are always used under very large loads and tightening torques, in order to provide a very sure and firm locking.

It should moreover be pointed out that the preset tightening torques are often exceeded by the drivers, during the wheel replacing operations, since they are generally lacking of a suitable
25 calibrated spanner.

Thus the threads may be damaged and sometimes the screws and nuts may be broken.

Accordingly, the task of the present invention is to overcome the above mentioned drawback, by providing such a flange nut, with a rotatable captive washer, which is specifically designed for
30 coupling the wheels of industrial vehicles and which is susceptible to be precisely aligned with the screw thereon it will be assembled.

Within that task, it is a main object of the present invention to provide such a flange nut, specifically designed for coupling the wheels of
40 industrial vehicles, which is effective to assure a perfect assembling of a wheel on a related hub.

According to one aspect of the present invention, the above task and object, as well as yet other objects, which will become more apparent hereinafter, are achieved by a nut for
45 coupling an industrial vehicle wheel, characterized in that to the flange hexagonal body of said nut there is restrained a washer effective to be coaxially rotated with respect to said nut, the contacting surfaces of said nut and washer
50 having respectively a convex and concave contour.

Further characteristics and advantages of the nut, particularly designed for coupling industrial
55 vehicle wheels, according to the present invention, will become more apparent hereinafter from the following detailed description of a preferred embodiment of said nut, being illustrated, by way of an example and not of
60 limitation, in the figures of the accompanying drawing, where;

Fig. 1 is a partially sectioned view illustrating the flange nut according to the present invention as coupled to the rotatable washer;

65 Fig. 2 is a cross-sectional view illustrating the body of that same nut;

Fig. 3 is a cross-sectional view illustrating the washer; and

Fig. 4 illustrates the application of the nut
70 according to the present invention on a screw having an axis slightly offset from the perpendicular line to the nut bearing surface.

With reference to the figures of the accompanying drawing, the nut according to the
75 present invention comprises a body 1, provided with a shoulder 2 and a collar 3.

The latter, being suitably outwardly bent, is effective to restrain to the body 1 a washer 4, the latter being able of freely rotating with respect to
80 the body 1.

More specifically, the contacting surfaces of the nut 5 and washer 6 are made with a semi-spherical shape and with a bending radius preferably varying, depending on the specific
85 needs, from 40 to 70 mm.

Thus, owing to that approach, it will be possible to perfectly align the nut and screw 7, thereon it will be mounted, and accordingly a perfect assembling will be obtained even if the
90 washer bearing plate 8 is slightly disaligned.

In actual practice, the nut according to the present invention is more sure than known nuts of like types, since the threads of the screw and nut engage always axially and hence in an optimal
95 way.

From the above disclosure and the figures of the accompanying drawing, the great functionality and use facility characterizing the nut and captive washer assembly, particularly for
100 coupling industrial vehicle wheels according to the present invention, will be self-evident.

CLAIMS

1. Flange nut for coupling an industrial vehicle wheel, characterized in that to the flange
105 hexagonal body of said nut there is restrained a washer effective to be coaxially rotated with respect to said nut, the contacting surfaces of said nut and washer having respectively a convex and concave contour.

2. A flange nut, according to the preceding claim, characterized in that it comprises a threaded body, provided with a shoulder and collar which, as it is outwardly bent, is effective to
110 restrain said washer on said body.

3. A flange nut, according to claim 1, characterized in that said contacting surfaces have a bending radius from 40 to 70 mm.

4. A flange nut, according to claim 1, characterized in that the body of said nut is
120 hexagonal and provided with a flange.

5. A flange nut, according to the preceding claims, and substantially as illustrated and disclosed for the intended objects.